

CLAIMS

1. A device for detecting the presence of an impact delivered by a mobile body onto a target and for measuring its strength, characterised in that it comprises a sensor A integral with a target whose function is to indicate whether the target has been hit and to give an electric image of the delivered blow, and which comprises a variable capacitor and a sensor B integral with a mobile body (5) associated to a possibly mobile target (2), said sensor B being designed to indicate whether the mobile body (5) touches the target (2) lightly or strikes it, and being made up of a variable induction coil.

2. A sensor B in a detection device according to claim 1, characterized in that the mobile body (5) comprises a material which is highly permeable to the magnetic field, and in that the target (2) includes means which create a magnetic field in their neighborhood, the magnetic properties of the target (2) being detected with the help of a magnetic field detector.

3. A sensor B according to claim 2, characterized in that the material

which is permeable to the magnetic field has an initial permeability of 60,000 and a maximum permeability of 240,000, said material being chosen among the group comprising ferromagnetic alloys having a high magnetic permeability and a low coercive force.

5 4. A sensor B according to any of claims 2 or 3, characterized in that the material which is permeable to the magnetic field is a Mumetal® or Permalloy® type alloy as marketed by the Goodfellow company.

 5. A sensor B according to any of claims 2-4, characterized in that the variations of magnetic properties of the target (2) as induced by the material which
10 is permeable to magnetic fields are detected by a magnetic field detector which comprises an induction coil (3), an oscillating circuit (1), a converter (6) and a comparator (4).

 6. A sensor A included in a detection device according to claim 1, characterized in that it comprises a matrix including a plurality of capacitors, wherein
15 this capacitor matrix may be partially deformed under the influence of an impact to yield a variable conductance.

7. A sensor A according to claim 6, characterized in that the capacitor matrix comprises a first matrix M including a plurality of plates P1, P2, P3,... Pn of a conductor metal which are interconnected, and a second matrix M' including a plurality of plates P'1, P'2, P'3,... P'n of a conductor metal which are interconnected, said plates P1, P2, P3,... Pn facing said plates P'1, P'2, P'3,... P'n and being separated therefrom by a variable distance to form capacitors whose distances between the plates may vary under the influence of an impact.

8. A process for detecting the nature of a blow as delivered onto a target, and for measuring its strength, characterized in that the presence of a mobile body near or on a target is detected by creating a magnetic field on the target and varying it with the help of the mobile body in order to thus obtain a variable inductance with the help of the device according to claim 1, and that the strength of the blow is measured with the help of said device, with on the one hand the relevant information about the capacity variation being memorized in a 16 bit register and on the other hand the relevant information about the inductance variation being memorized by one bit in a low level latch if the mobile body is present and in a high level latch if the

mobile body is absent.

9. A process according to claim 8, characterized in that data concerning the relevant information about capacity variation and the relevant information about inductance variation are transmitted in the form of signals through radio waves to a receiver which is connected to a computer.

10. The use of the device according to claim 1 for referees in a combative sport, more particularly for taekwondo.